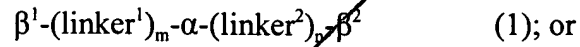


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Abstract

Single-chain agonists and/or antagonists of the glycoprotein hormones are disclosed. These proteins are of the formula

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wherein each of  $\beta^1$  and  $\beta^2$  has the amino acid sequence of the  $\beta$  subunit of a vertebrate glycoprotein hormone or a variant thereof; " $\alpha$ " designates the  $\alpha$  subunit of a vertebrate glycoprotein hormone or a variant thereof; "linker" refers to a covalently linked moiety that spaces the  $\beta^1$  and  $\beta^2$  subunits at distances from the  $\alpha$  subunit and from each other effective to retain said activity, and each of m and n is independently 0 or 1.

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